

In-situ Burning

Objective: To remove oil from the water surface or habitat by burning it in place.

Description: Oil floating on the water surface is collected into slicks at least 2-3 mm thick and ignited. The oil can be contained in fire-resistant booms, or by natural barriers such as ice or the shore. On land, oil can be burned when it is on a combustible substrate such as vegetation, logs, and other debris. Oil can be burned from non-flammable substrates using a burn promoter. On sedimentary substrates, it may be necessary to dig trenches for oil to accumulate in pools to a thickness that will sustain burning. Heavy oils are hard to ignite but can sustain a burn. Emulsified oils may not ignite nor sustain a burn when the water content is greater than 30 to 50 percent.

Applicable Habitat Types: On most habitats, except dry, muddy substrates where heat may impact the biological productivity of the habitat. May increase oil penetration in permeable substrates. Not suitable for woody vegetation such as mangroves.

When to Use: On floating slicks, early in the spill event when the oil can be kept thick enough (2-3 mm). On land, where there is heavy oil in sites neither amenable nor accessible to physical removal and the oil must be removed quickly. In wetlands and mud habitats, a water layer will minimize impacts to sediments and roots. Many potential applications for spills in ice. There are many operational and public health limitations.

Biological Constraints: The possible effects of large volumes of smoke on nesting birds and populated areas should be evaluated.

In-situ Burning (cont.)

Environmental Effects: Temperature and air quality effects are likely to be localized and short-lived. Toxicological impacts from burn residues have not been evaluated.

On water, burn residues may sink. On land, removal of burn residues is often necessary for crude and heavy oils. Residue removal can physically disrupt sensitive habitats such as wetlands. There are few studies on the relative effects of burning oiled wetlands compared to other techniques or natural recovery. Limited data indicate recovery of wetland vegetation will depend on season of burn, type of vegetation, and water level in the marsh at time of burn.

Waste Generation: Any residues remaining after burning will need to be collected and landfilled but, with an efficient burn, will be a small fraction of the original oil volume.